

UNIT: OXCART
EXT: 245
DATE: 3 APRIL 68

25X1A

CLASSIFIED MESSAGE

SECRET

1	OXG	9
2	OXG	10
3	D/O	11
4	D/SA	12
5	D/M	13
6	R&D	14
7	SS	15
8	RB	16

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	ROUTINE	OPERATIONAL IMMEDIATE	INITIALS

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OX CART OPS
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REF: [REDACTED] AND TDC #6 DATED 5 MAR 68

SUBJ: SR-71 TIRE FAILURE DURING FLIGHT

1. THE FOLLOWING HAS BEEN EXTRACTED FROM THE SR-71 INCIDENT REPORT AND IS FORWARDED FOR YOUR INFO:

"A. AIRCRAFT GROSS WT AT ENGINE START WAS 125,000 LBS. AFTER ENGINE START THE AIRCRAFT WAS TAXIED 5,000 FT TO THE RUN-UP POSITION WHERE A FIVE-MINUTE COOLING PERIOD TOOK PLACE DURING ENGINE RUN-UP AND TRIM. THE AIRCRAFT WAS THEN TAXIED 400 FT TO THE TAKEOFF POSITION. TAKEOFF WAS ABORTED APPROX 1,500 FT DOWN THE RUNWAY AT 80 KTS. THROTTLES WERE RETARDED TO IDLE AND THE AIRCRAFT WAS ALLOWED TO COAST THE REMAINING 10,000 FT USING MINIMUM BRAKES AND NO CHUTE. AIRCRAFT WAS THEN TAXIED BACK 14,800 FT

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TO THE TAKEOFF POSITION. TAXI SPEED WAS NORMAL. THIRTEEN MINUTES ELAPSED FROM THE TIME OF THE INITIAL ABORT UNTIL THE ACTUAL TAKEOFF BEGAN. THE AIRCRAFT BECAME AIRBORNE AFTER ACCELERATING TO 235 KTS IN 4400 FT OF GROUND ROLL.

B. AFTER CLIMB TO 26,000 FT, AIRCRAFT PROCEEDED SUB-SONIC CRUISE TO AN A/R AREA. UPON COMPLETION OF REFUELING AT 25,000 FT, THE NUMBER 4 TIRE ON THE RIGHT MAIN LANDING GEAR TRUCK FAILED WHILE THE LANDING GEAR WAS IN THE WHEEL WELL. TIRE FAILURE WAS 1+45 AFTER TAKEOFF. AIRCRAFT WAS IMMEDIATELY RETURNED TO BEALE AND LANDED WITHOUT FURTHER INCIDENT.

C. FAILURE OF THE TIRE RELEASED 380 POUNDS OF PRESSURE INTO THE WHEEL CAN HOUSING AND RESULTED IN OVER-PRESSURES OF SUFFICIENT FORCE TO RUPTURE THE WHEEL CAN. THE WHEEL CAN HOUSING EXPANDED OUTWARD RUPTURING HYDRAULIC LINES

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AND OTHER FITTINGS IN THE IMMEDIATE AREA RESULTING IN THE COMPLETE LOSS OF "A", "L" AND "R" HYDRAULIC PRESSURES. THE LINES TO THE "B" HYDRAULIC SYSTEM WERE ALSO DAMAGED BUT RETAINED THEIR INTEGRITY. HAD THESE LINES FAILED, COMPLETE LOSS OF THE CONTROL SYSTEM WOULD HAVE OCCURRED.

D. THE FINDINGS AND RECOMMENDATIONS ARE:

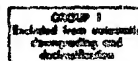
(1) PRIMARY CAUSE: MATERIAL FACTOR IN THAT THE NUMBER FOUR TIRE FAILED FROM HEAT GENERATED DURING GROUND MANEUVERS AND RESULTANT HEAT SOAK WITHIN THE TIRE CAN AFTER TAKEOFF.

(2) RECOMMENDATIONS: STUDIES BE CONDUCTED TO DETERMINE THE RELIABILITY OF THE SR-71 TIRE IN ITS OPERATIONAL ENVIRONMENT. ESTABLISH AND PUBLISH OPERATIONAL LIMITS FOR SR-71 TIRES (TDC #6). CONTINUE EFFORTS TO DEVELOP AN IMPROVED TIRE FOR THE SR-71

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SO THAT LIMITS WILL NOT BE IMPOSED TO RESTRICT GROUND OPERATION AND TO IMPROVE OVERALL RELIABILITY OF THE TIRES.

(3) CONTRIBUTING CAUSE: DESIGN DEFICIENCY, TIRE CAN, IN THAT INSUFFICIENT COOLING TAKES PLACE WITHIN THE WHEEL CAN WITH THE LANDING GEAR IN THE UP POSITION AND CAN ALLOW EXCESSIVE HEAT BUILD-UP AND HEAT SOAK OF ASSOCIATED TIRES. RECOMMENDATION: A STUDY BE CONDUCTED TO DEVELOP A METHOD TO ENHANCE HEAT DISSIPATION FROM WITHIN THE WHEEL CAN.

(4) CONTRIBUTING CAUSE: DESIGN DEFICIENCY, WHEEL RIM HEAT PLUGS, IN THAT SUFFICIENT HEAT CAN BE GENERATED ON SR-71 TIRES TO CAUSE TIRE FAILURE PRIOR TO WHEEL RIM HEAT PLUG BLOWOUT.

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(5) RECOMMENDATION: IMPROVE THE HEAT PLUG SYSTEM TO INSURE TIRE PRESSURE WILL BE EXHAUSTED PRIOR TO FAILURE OF THE TIRE FROM HEAT.

(6) ADDITIONAL FINDING: RUPTURE OF THE WHEEL CAN FROM OVERPRESSURE MAY CAUSE SUFFICIENT DAMAGE TO ADJACENT PLUMBING TO RESULT IN LOSS OF ALL CRITICAL SYSTEMS NECESSARY TO MAINTAIN CONTROL OF THE AIRCRAFT.

(7) RECOMMENDATION: INITIATE ACTION TO RE-ROUTE OR ARMOUR HYDRAULIC LINES TO PREVENT LOSS OF BOTH "A" AND "B" SYSTEMS IN THE EVENT OF FUTURE INCIDENTS OF THIS TYPE."

END OF MESSAGE

coord: D/m *[Signature]*

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WILLIAM E. SHELTON
D/O/OSA
RELEASING OFFICER

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